

1 REMARKS

2 Status of the Claims

3 Claims 1-36 and 46-52 are pending in the present application, with Claims 37, 38, 45, and
4 46 having been previously canceled, Claims 39-44 having been canceled in the present
5 amendment as being directed to a non-elected invention, and Claims 1, 5, 22-24, 25, 33-35, and
6 47-51 having been amended to more clearly define the invention.

7 Summary of Telephone Interview with the Examiner

8 On February 5, 2007 Examiner H.C. Le, Supervisory Examiner Lowell Larson, and
9 applicant's attorney (Michael C. King, Registration No. 44,832) discussed the rejection of
10 various pending claims as obvious over U.S. Patent No. 5,295,384 (Schubert). The following
11 specific points were addressed.

12 Applicant's attorney noted that Claim 4 recites a structure that distinguishes over the cited
13 art, with respect to the following language: "*said frame comprises a first section and a second*
14 *section, a position of said first section relative to said second section **being adjustable to enable***
15 *a width of a gap separating the adjacent first inner edge and second inner edge to be adjusted*
16 *to a desired dimension.*" (Emphasis added.) Applicant's attorney noted that such a structure
17 enables channels of varying width to be formed in sheet metal (the dimension of the channel
18 being a function of the gap separating the edges; referring to FIGURES 4 and 10A of the pending
19 application). After a brief discussion of this issue, Examiner Larson agreed that the structure
20 recited in Claim 4 appeared to distinguish over the cited art.

21 Applicant's attorney noted that Claims 6, 29, and 47 recite a structure that distinguishes
22 over the cited art, with respect to the following language: "*a hinge assembly disposed at each*
23 *end of the first and second working surfaces.*" Applicant's attorney noted that Schubert discloses
24 a different hinge configuration in each of his embodiments (either a single piano hinge, or a
25 plurality of hinges disposed along the longitudinal axis, but **not** at each opposed end). After a
26 brief discussion of this issue, Examiner Larson agreed that the structure recited in Claims 6, 29,
27 and 47 appeared to distinguish over the cited art.

28 Applicant's attorney noted that Claims 8 and 30 recite a structure that distinguishes over
29 the cited art, with respect to the following language: "*each hinge assembly comprises a pair of*
30 *sector gears, and a pair of rack gears that are mounted on the frame, each sector gear engaging*

1 *a different rack gear and being mounted at an end of different ones of the first and second*
2 *working surfaces.”* Applicant’s attorney noted that Schubert discloses a different hinge
3 configuration in each of his embodiments. After a brief discussion of this issue, Examiner
4 Larson also agreed that the structure recited in Claims 8 and 30 appeared to distinguish over the
5 cited art.

6 Applicant’s attorney further noted that Claim 9 recites a structure that distinguishes over
7 the cited art, with respect to the following language: *“said frame includes a generally U-shaped*
8 *portion defined by support members disposed adjacent to the end of one of the first and second*
9 *working surfaces, such that each rack gear is attached to a different support member.”*
10 (Emphasis added.) Applicant’s attorney noted that Schubert discloses a different rack/frame
11 configuration in each of his embodiments. After a brief discussion of this issue, Examiner
12 Larson agreed that the structure recited in Claim 9 appeared to distinguish over the cited art.

13 Applicant’s attorney noted that Claim 11 recites a structure that distinguishes over the
14 cited art, with respect to the following language: *“each hinge assembly further comprises a first*
15 *link and a second link joined by a pivot shaft, the first link being coupled to one sector gear, and*
16 *the second link being coupled to another sector gear.”* Applicant’s attorney noted that Schubert
17 discloses a different hinge and sector gear configuration in each of his embodiments. After a
18 brief discussion of this issue, Examiner Larson agreed that the structure recited in Claim 11
19 appeared to distinguish over the cited art.

20 Finally, applicant’s attorney discussed a proposed amendment to Claim 1 that not only
21 encompassed the elected species, but several non-elected species, as well. Examiner Larson
22 agreed that if such a claim were allowed and was generic to any of the non-elected species, those
23 non-elected species would be rejoined into the application.

24 Applicant’s attorney would like to thank Examiner Le and Supervisory Examiner Larson
25 for taking the time to discuss the issues noted above during the Telephone Interview, because
26 such discussion was very helpful in substantially advancing the prosecution of the application.

27 Rejection of Claims 1-5, 26-27, 32, 47, 50 and 52 under 35 U.S.C. § 112

28 The Examiner has rejected Claims 1-5, 26, 27, 32, 47, 50, and 52 as being indefinite due
29 to the inclusion of language such as “substantially,” “predefined,” “desired,” and “substantial;” as
30 well as the lack of antecedent basis for the term “the sheet metal” in Claim 5.

1 MPEP 2173(b) makes it clear that the use of relative language alone does not
2 automatically render a claim indefinite. An analysis must be made to determine whether one of
3 ordinary skill in the art would understand what is claimed, in light of the specification. The
4 current indefiniteness rejection contains no such analysis, and simply rejects the claims for
5 including such relative language. A reasoned review of the specification will show that the use
6 of relative terms in the claims is not indefinite.

7 With respect to the term substantial, MPEP 2173.05(B) specifically states:

8 The term "substantially" is often used in conjunction with another term to
9 describe a particular characteristic of the claimed invention. It is a broad
10 term. *In re Nehrenberg*, 280 F.2d 161, 126 USPQ 383 (CCPA 1960). The
11 court held that the limitation "to substantially increase the efficiency of the
12 compound as a copper extractant" was definite in view of the general
13 guidelines contained in the specification. *In re Mattison*, 509 F.2d 563, 184
14 USPQ 484 (CCPA 1975). The court held that the limitation "which
15 produces substantially equal E and H plane illumination patterns" was
definite because one of ordinary skill in the art would know what was
meant by "substantially equal." *Andrew Corp. v. Gabriel Electronics*, 847
F.2d 819, 6 USPQ2d 2010 (Fed. Cir. 1988).

16 Support for the Use of Relative Terms in Claim 1

17 Claim 1 recites: "*the first inner edge and the second inner edge being oriented*
18 *substantially adjacent to one another in a facing relationship.*" The specification as filed
19 specifically states:

20 As will be clear with respect to the following Figures, when bottom tool 50
21 is used to deform a malleable work piece, plate dies 52a and 52b are
22 deflected to pivot downwardly under a force applied from above by an
23 upper tool or punch. Spring elements 70 will cause sector gears 62 and
24 plates 52a and 52b to be returned to their original positions after the
25 downward force applied by the upper tool is removed. Depending on the
strength of the springs employed, the springs can also provide a resist force,
as is desirable for bending certain materials (page 17, first paragraph).

26 The plate dies can be seen at rest in applicant's FIGURES 4, 5, and 6 and can be seen
27 pivoting in FIGURES 7A-7C. Clearly, the term *oriented substantially adjacent to one another in*
28 *a facing relationship* reflects the clearly disclosed pivoting condition, when the facing
29 relationship is slightly modified due to the pivotal motion of the plate dies (note how the opposed
30 faces of the plate dies move relative to each other while pivoting. At rest, these faces are

1 immediately adjacent, and during pivoting, the faces are slightly deflected, *i.e., substantially*
2 *adjacent*). Given the disclosure and Figures provided, there appears to be no reasonable basis to
3 conclude that an artisan of ordinary skill would be unable to determine the scope of Claim 1, due
4 to the use of the phrase “*the first inner edge and the second inner edge being oriented*
5 *substantially adjacent to one another in a facing relationship.*”

6 Claim 1 further recites that: “*a substantially fixed separation between the first inner edge*
7 *and the second inner edge is maintained, regardless of a rotational angular displacement of*
8 *either of the first and second working surfaces.*” The specification as filed specifically states:

9 Even though FIGURES 11A-11C show adjacent inner edges that do not
10 maintain an absolute fixed separation, the separation varies by only a small
11 amount, and thus can be considered to be substantially fixed, particularly in
12 comparison to the separation distance between inner edges in adjacent dies
in the prior art, as discussed below (page 29, first paragraph).

13 Given such disclosure, there simply is no basis to conclude that an artisan of ordinary skill
14 would not be able to understand the scope of the claim. Accordingly, the rejection of Claim 1 for
15 being indefinite should be withdrawn.

16 Support for the Use of a Relative Term in Claim 2

17 Claim 2 recites: “*the first inner edge and second inner edge are separated by a*
18 *substantial gap having a predefined width, said substantial gap affecting a configuration of the*
19 *sheet metal formed with the bending die.*” The specification as filed specifically states:

20 In at least one embodiment of the press brake, the first and second dies
21 substantially abut one another, being separated only to the extent to enable
22 the first and second dies to be displaced without contacting one another. In
23 another embodiment, an adjustable frame enables the first and second dies
24 to be spaced apart by a desired amount, such that the dies are separated by a
gap having a predefined size. The gap enables a channel having a similar
size to be formed in a work piece (page 9, lines 18-24).

25 Clearly, in one exemplary embodiment, there is almost no gap between the lower dies,
26 while in another exemplary embodiment, such a gap enables a channel to be formed (see also
27 FIGURES 10A-10C and the related text). The text clearly describes how the “*substantial gap*”
28 enables a channel to be formed in sheet metal. Note that the term “*substantial gap*” clearly
29 contrasts with the “*substantially abuts*” language of Claim 3, because in the embodiment of
30 Claim 3, there is very little gap, and in Claim 2, there is a very apparent gap to enable a channel

1 to be formed. There is simply no reasonable basis to conclude that an artisan of ordinary skill in
2 the art would be unable to understand the language and scope of Claim 2. Accordingly, the
3 rejection of Claim 2 for being indefinite should be withdrawn.

4 Support for the Use of a Relative Term in Claim 3

5 Claim 3 recites: “*wherein the adjacent first inner edge and second inner edge*
6 *substantially abut one another.*” The excerpt from the specification noted above with respect to
7 the discussion of Claim 2 clearly describes the meaning of the term “*substantially abuts.*” Since
8 the specification precisely defines the language employed in Claim 3, the rejection of Claim 3 as
9 being indefinite should be withdrawn.

10 Support for the Use of a Relative Term in Claim 4

11 Claim 4 recites: “*said frame comprises a first section and a second section, a position of*
12 *said first section relative to said second section being adjustable to enable a width of a gap*
13 *separating the adjacent first inner edge and second inner edge to be adjusted to a desired*
14 *dimension.*” The specification specifically states:

15 Another aspect of the invention is an adjustable frame, such that the first
16 and second working surfaces can be separated by a gap having a desired
17 size. The elements of the frame can be moved closer together to achieve a
18 smaller gap, or farther apart to achieve a larger gap. A gap is particularly
19 useful for forming a channel into a work piece. An adjustable gap enables
different sized channels to be formed (page 7, second paragraph).

20 As disclosed, the dimension of the gap can be adjusted to achieve different size channels.
21 The desired dimension is clearly the dimension that will enable a channel of a desired dimension
22 to be achieved. Therefore, a specific gap dimension will be associated with a desired channel
23 dimension. There is simply no reasonable basis to conclude that an artisan of ordinary skill in the
24 art would be unable to understand the language and scope of Claim 4. Accordingly, the rejection
25 of Claim 4 for being indefinite should be withdrawn.

26 Support for the Use of a Relative Term in Claim 5

27 Claim 5 recites: “*regardless of the rotational angular displacement of the working*
28 *surface, the center of rotation remains substantially fixed relative to each working surface.*”
29 Support for the “*substantially fixed*” language has been provided above with respect to the
30 discussion of the indefiniteness rejection of Claim 1. The indefiniteness rejection of Claim 5 for

1 the use of the term “*substantially*” should be withdrawn for the same reasons (note that Claim 5
2 has been amended to obviate the antecedent basis rejection).

3 Support for the Use of a Relative Term in Claim 26

4 Claim 26 recites: “*wherein a substantially fixed separation is maintained between*
5 *adjacent inner edges of the first and second dies, regardless of the rotational angular*
6 *displacement of either one of the first and second dies about its respective center of rotation.*”

7 Support for the “*substantially fixed*” language has been provided above with respect to the
8 discussion of the indefiniteness rejection of Claim 1. The indefiniteness rejection of Claim 26
9 should be withdrawn for the same reasons.

10 Support for the Use of Relative Terms in Claim 27

11 Claim 27 recites: “*wherein said frame is adjustable, so that said substantially fixed*
12 *separation can be adjusted to a desired dimension, the desired dimension being substantially*
13 *maintained regardless of the rotational angular displacement of either of the first and second*
14 *dies.*” Support for the “*substantially fixed*” language has been provided above with respect to the
15 discussion of the indefiniteness rejection of Claim 1, and support for the “*desired dimension*”
16 language has been provided above with respect to the discussion of the indefiniteness rejection of
17 Claim 4. The indefiniteness rejection of Claim 27 should be withdrawn for the same reasons.

18 Support for the Use of a Relative Term in Claim 32

19 Claim 32 recites: “*causing the rotational angular displacement of said first and second*
20 *dies, in order to achieve a desired deformation of the sheet metal.*” As noted above, the use of a
21 relative term is not *per se* indefinite. An analysis must be made to determine if an artisan of
22 ordinary skill would understand the scope of the claim in light of the specification. The
23 specification clearly describes various deformations, including right angle bending, over-bending,
24 and channel formation. Clearly, the artisan of ordinary skill would recognize that different
25 deformation can be achieved, such that a user of the claimed tool could select a desired
26 deformation. There is simply no reasonable basis to conclude that an artisan of ordinary skill in
27 the art would be unable to understand the language and scope of Claim 32. Accordingly, the
28 rejection of Claim 32 for being indefinite should be withdrawn.

1 Support for the Use of a Relative Term in Claim 47

2 Claim 47 recites: “*a substantially fixed separation.*” Support for the “*substantially fixed*”
3 language has been provided above with respect to the discussion of the indefiniteness rejection of
4 Claim 1. The indefiniteness rejection of Claim 47 should be withdrawn for the same reasons.

5 Support for the Use of a Relative Term in Claim 50

6 Claim 50 recites: “*a desired deformation.*” Support for the “*desired deformation*”
7 language has been provided above with respect to the discussion of the indefiniteness rejection of
8 Claim 32. The indefiniteness rejection of Claim 50 should be withdrawn for the same reasons.

9 Support for the Use of Relative Terms in Claim 52

10 Claim 52 recites both a “*substantially fixed separation*” and a “*desired dimension.*”
11 Support for the “*substantially fixed*” language has been provided above with respect to the
12 discussion of the indefiniteness rejection of Claim 1, and support for the “*desired dimension*”
13 language has been provided above with respect to the discussion of the indefiniteness rejection of
14 Claim 4. The indefiniteness rejection of Claim 52 should be withdrawn for the same reasons.

15 Rejection of Claims 1-6, 13, and 16 under 35 U.S.C. § 102(b)

16 The Examiner has rejected Claims 1-6, 13 and 16 as being anticipated by U.S. Patent
17 No. 5,295,384 (Schubert). The Examiner asserts that Schubert discloses a device equivalent to
18 what applicant recites in these claims. Applicant has significantly amended independent Claim 1
19 to obviate the rejection of Claims 1-6, 13, and 16, as discussed in detail below.

20 As amended, Claim 1 recites that the first and second adjacent working surfaces are
21 respectively parts of first and second movable components, and that the first and second movable
22 components are supported by the frame either by a combination of sector gears and parallel rack
23 gears, or by rotatably engaging the frame at opposed openings in the frame, where each such
24 opening fully encloses the corresponding bearing surface portion of the first and second movable
25 components. The first support configuration can be seen in applicant’s FIGURES 4-6, 7A-7C,
26 and 10A-10D. The second support configuration can be seen in applicant’s FIGURES 14A, 14B
27 and 16.

28 It should be noted that as amended, Claim 1 now reads on a plurality of different species.
29 Specifically, Claim 1 as amended is generic to Species A (the embodiment of FIGURES 4-6);
30 Species B (the embodiment of FIGURES 7A-8C); Species C (the embodiment of FIGURES 9-

1 13); Species D (the embodiment of FIGURES 14A-14B); and Species H (the embodiment of
2 FIGURE 16). Species A, B, and C are encompassed by the recitation of supporting the first and
3 second movable components using a combination of sector gears and parallel linear rack gears,
4 while Species D and H are encompassed by the recitation of supporting the first and second
5 movable components by rotatably engaging the frame at opposed openings in the frame, where
6 each such opening fully encloses the corresponding bearing surface portion of the first and
7 second movable components. As discussed in the above-noted Telephone Interview, such an
8 amendment that is generic to more species is acceptable, so long as it continues to read on the
9 originally elected species.

10 With respect to the cited art, Schubert discloses four embodiments: FIGURES 1-21 relate
11 to a first embodiment, FIGURES 22-25 relate to a second embodiment, FIGURE 26 relates to a
12 third embodiment, and FIGURES 27-35 relate to a fourth embodiment. None of those four
13 embodiments comprises an equivalent of applicant's recitation of supporting the first and second
14 movable components, which include the adjacent working surfaces.

15 Schubert's first embodiment is supported by frame 2 at main supports 3 and 4
16 (presumably by rotatably engaging the frame), and by a combination of rack gears and spur gears.
17 Significantly, the linear rack gears in this embodiment are not all parallel as recited in amended
18 Claim 1 (rack gears for lower tools 19 and 20 form an "X" configuration, thus Schubert's first
19 embodiment is not equivalent to the first support configuration recited in amended Claim 1).
20 Further, there is simply no evidence that lower tools 19 and 20 include a bearing surface that
21 rotatably engages the frame at opposed openings in the frame, i.e., read on applicant's recitation
22 of *where each such opening fully encloses the corresponding bearing surface portion* of lower
23 tools 19 and 20. Thus, Schubert's first embodiment is not equivalent to the second support
24 configuration recited in amended Claim 1, the configuration where the first and second movable
25 components are supported by openings in the frame that fully enclose the bearing portions of the
26 first and second movable components, which is the configuration shown in applicant's
27 FIGURES 14A and 16.

28 Schubert's second embodiment (Schubert's FIGURE 22) does not employ linear rack
29 gears for each lower tool that are parallel to each other, and thus, Schubert's second embodiment
30 is not equivalent to the first support configuration recited by applicant in amended Claim 1.

1 Further, there is simply no evidence that lower tools 19 and 20 include a bearing surface that
2 rotatably engages the frame at opposed openings in the frame, *where each such opening fully*
3 *encloses the corresponding bearing surface portion* of lower tools 19 and 20. Thus, Schubert's
4 second embodiment is not equivalent to the second support configuration recited in amended
5 Claim 1, i.e., the configuration shown in applicant's FIGURES 14A and 16.

6 Schubert's third embodiment (Schubert's FIGURE 26) does not employ linear rack gears
7 for each lower tool that are parallel to each other. Thus, Schubert's third embodiment is not
8 equivalent to the first support configuration recited by applicant in amended Claim 1. Schubert's
9 third embodiment includes a bearing groove 78 that rotatably engages the lower tools; however,
10 bearing groove 78 (see Schubert's FIGURE 28) *does not fully enclose* the bearing portions of the
11 lower tools (note that bearing groove 78 is open at the top, and thus does not fully enclose the
12 component being supported). Thus, Schubert's third embodiment is not equivalent to the second
13 support configuration recited in amended Claim 1, i.e., the configuration shown in applicants
14 FIGURE 14A and 16.

15 Schubert's fourth embodiment (shown in Schubert's FIGURES 28-30) does not employ
16 linear rack gears for each lower tool that are parallel to each other. Thus, Schubert's fourth
17 embodiment is not equivalent to the first support configuration recited in applicant's amended
18 Claim 1. Schubert's fourth embodiment also includes a bearing groove 78 that rotatably engages
19 the lower tools; however, bearing groove 78 (see Schubert's FIGURE 28) does not fully enclose
20 the bearing portions of the lower tools. Thus, Schubert's fourth embodiment is not equivalent to
21 the second support configuration recited in amended Claim 1, i.e., the configuration shown in
22 applicant's FIGURES 14A and 16.

23 Kimura (previously cited) discloses supporting the lower tools/working surfaces using
24 linear rack gears for each lower tool that are parallel to each other (the first support configuration
25 recited by applicant in Claim 1). However, the working surfaces defined in Claim 1 are
26 significantly different than the working surfaces disclosed by Kimura. The device disclosed by
27 Kimura is configured to bend pipe and each include a groove or channel configured to support
28 the pipe. Claim 1 was previously amended to distinguish over Kimura, generally as described
29 below.

1 As previously amended, Claim 1 specifically recites that the working surfaces are
2 generally planar. It must be recognized that the prior art does NOT teach or suggest changing the
3 configuration of Kimura's working surfaces to achieve the generally planar configuration now
4 recited by applicant's claim. Any modification of Kimura's apparatus that would lead to an
5 equivalent of that recited by applicant's claim would appear to impermissibly rely upon
6 hindsight, as opposed to any teaching or suggestion to be found in the cited art. Claim 1 further
7 distinguishes over the cited art for the following additional reason. The end surfaces disclosed by
8 Kimura are oriented *orthogonal* to the length of the working surfaces (i.e., orthogonal relative to
9 the channels that receive the pipe), and parallel to the width of the working surfaces. In contrast,
10 as recited in Claim 1 (as previously amended), applicant's inner edge surfaces (which are
11 similarly oriented in a facing relationship) are oriented in parallel with the longitudinal axis of
12 the working surfaces (i.e., parallel to the lengthwise axis of the working surfaces). Referring to
13 applicant's FIGURE 4, note that the inner edges of the working surfaces (which are oriented in a
14 facing relationship and substantially abut one another) extend along the length of the working
15 surfaces (i.e., along the longest dimension of the working surfaces). Such an orientation is
16 completely opposite to the orientation disclosed by Kimura. The prior art does not teach or
17 suggest changing the orientation of Kimura's working surfaces to achieve the orientation recited
18 and claimed by applicant.

19 Clearly, neither Schubert nor Kimura discloses any structure equivalent to the recitation of
20 applicant's claim. Nor is there any evidence of any suggestions that would have lead an artisan
21 of ordinary skill in the art to modify the structures disclosed in the cited art to achieve an
22 equivalent structure. The only basis for such modifications appears to be an impermissible
23 application of hindsight. Thus, Claim 1 is clearly patentable over the art of record. It is well
24 accepted that dependent claims are patentable for at least the same reasons as the claims from
25 which they depend. Accordingly, the rejection of Claims 1-6, 13, and 16 as being anticipated by
26 Schubert should be withdrawn.

27 Furthermore, as noted above with respect to the above discussion of the Telephone
28 Interview, the Supervising Examiner and applicant's attorney agreed that Claims 4 and 6 further
29 distinguish over the cited art. A brief discussion of why such claims distinguish over the cited art
30 is provided below.

1 With respect to Claim 4, the following elements are recited in and would have to be
2 disclosed by the cited art to read on applicant's claim: "*said frame comprises a first section and*
3 *a second section, a position of said first section relative to said second section **being adjustable***
4 *to enable a width of a gap separating the adjacent first inner edge and second inner edge to be*
5 *adjusted to a desired dimension.*" (Emphasis added.) As required by Claim 1 (upon which
6 Claim 4 depends), the bending die comprises a structure in which a substantially fixed separation
7 between the first inner edge and the second inner edge is maintained, regardless of a rotational
8 angular displacement of the first and second working surfaces. While it is true that regardless of
9 the position of the base (2, 3, 4, and 5) of Schubert's bending device relative to the position of
10 the upper tool (6, 7, 8, and 9), a substantially fixed separation between the first inner edge and the
11 second inner edge is maintained, regardless of a rotational angular displacement of either of the
12 first and second working surfaces. This can be clearly seen in Schubert's FIGURES 4 and 5,
13 where a separation between the inner edges of the top portion of Schubert's lower tools 19 and 20
14 remain substantially the same as compared with the orientation of the top portion of Schubert's
15 lower tools 19 and 20 in FIGURES 1, 2, and 3. *Note however*, as lower tools 19 and 20 are
16 moved, the inner edges on the lower portion of the lower tools move *away from each other*
17 (again, see FIGURES 4 and 5 of Schubert). Clearly, only the upper inner edges of Schubert's
18 lower tools 19 and 20 are equivalent to applicant's recited first inner edge and the second inner
19 edge (because only those portions of lower tools 19 and 20 maintain the required fixed
20 separation). Significantly, Schubert does not teach or suggest any structure enabling a separation
21 distance between the upper inner edges of lower tools 19 and 20 to be varied. Referring to
22 applicant's FIGURE 4, brackets 56a and 56b can be moved apart from each other, which will
23 enable the fixed separation between the first inner edge and the second inner edge to be adjusted.

24 With respect to Claim 6, the following elements are recited and would need to be taught
25 by the prior art to justify the present rejection: "*a hinge assembly disposed at each end of the*
26 *first and second working surfaces, each hinge assembly pivotally coupling said first and second*
27 *working surfaces together, such that a rotational displacement of one of said first and second*
28 *working surfaces results in a corresponding rotational displacement of the other one of said first*
29 *and second working surfaces, through an opposite rotational direction.*" Schubert discloses a
30 different structure to achieve a similar function. Specifically, Schubert discloses four

1 embodiments: the embodiments shown in FIGURES 1-21 relate to a first embodiment;
2 FIGURES 22-25 relate to a second embodiment; FIGURE 26 relates to a third embodiment; and,
3 FIGURES 27-35 relate to a fourth embodiment. None of those four embodiments has a hinge
4 orientation equivalent to the hinge orientation recited in Claim 6, which requires two hinges, one
5 at each end of the working surfaces (see applicant's FIGURES 4-6). Schubert's FIGURES 14-21
6 illustrate the hinges for Schubert's first embodiment. Significantly, these hinges are disposed
7 within cutouts in Schubert's lower tools 19 and 20, and **NOT** at the ends of the lower tools.
8 Schubert specifically teaches that these hinges are distributed along the length of the lower tools.
9 Schubert's FIGURE 22 illustrates the hinge for Schubert's second embodiment. A single piano
10 type hinge couples the lower tools 19 and 20 together. Such a structure is significantly different
11 than the opposed hinges employed by applicant, as recited in this claim. Schubert's FIGURE 26
12 illustrates Schubert's third embodiment, which does not appear to employ **any** hinge that actually
13 couples the lower tools together (note hinges 70 and 71 do not couple the lower tools together).
14 Schubert's FIGURES 28-30 illustrate a single piano type hinge used for Schubert's fourth
15 embodiment. Significantly, a piano hinge is not equivalent to the paired hinges recited in
16 applicant's claim. Claim 6 thus distinguishes over the cited art.

17 Rejection of Claims 25-30, 32, 34, and 36 under 35 U.S.C. § 102(b)

18 The Examiner has rejected Claims 25-30, 32, 34, and 36 as being anticipated by U.S.
19 Patent No. 5,295,384 (Schubert). The Examiner asserts that Schubert discloses an equivalent
20 device. Applicant has significantly amended independent Claim 25 to obviate the rejection of
21 Claims 25-30, 32, 34, and 36, as discussed in detail below.

22 Claim 25 has been amended in substantially the same fashion as Claim 1. As amended,
23 Claim 25 recites that the first and second dies are supported by the frame either by a combination
24 of sector gears and parallel rack gears, or by rotatably engaging the frame at opposed openings in
25 the frame, where each such opening fully encloses the corresponding bearing surface portion of
26 the first and second dies. The first support configuration can be seen in applicant's FIGURES 4-
27 6, 7A-7C, and 10A-10D. The second support configuration can be seen in applicant's
28 FIGURES 14A, 14B and 16. As discussed in detail above with respect to the rejection of Claim 1
29 as being anticipated by Schubert, the cited art does not teach or suggest any equivalent structure.

1 Thus, Claim 25 is clearly patentable over the art of record. It is well accepted that
2 dependent claims are patentable for at least the same reasons as the claims from which they
3 depend. Accordingly, the rejection of Claims 25-30, 32, 34, and 36 as being anticipated by
4 Schubert should be withdrawn.

5 It should be noted that Claim 27 recites subject matter substantially similar to that recited
6 in Claim 4, and the novelty of Claim 4 has been discussed above in detail. Claim 27 thus
7 distinguishes over the cited art for substantially the same reasons as Claim 4.

8 Similarly, it should be noted that Claim 29 recites subject matter substantially similar to
9 that recited in Claim 6, and the novelty of Claim 6 has been discussed in detail above. Claim 29
10 therefore distinguishes over the cited art for substantially the same reasons as Claim 6.

11 Furthermore, as noted above with respect to the above discussion of the Telephone
12 Interview, the Supervising Examiner and applicant's attorney agreed that Claim 30 distinguishes
13 over the cited art. A brief discussion of why Claim 30 distinguishes over the cited art is provided
14 below.

15 With respect to Claim 30, the following elements are recited: "each hinge assembly
16 comprises a pair of sector gears, and a pair of rack gears that are mounted on the frame, each
17 sector gear engaging a different rack gear and being mounted at an end of different ones of the
18 first and second working surfaces." Note that Schubert's first embodiment (and presumably
19 second embodiment, although Schubert's specification is not very clear on this point) includes
20 rack gears that engage spur gears. Because of the required rotation of the spur gears, it does not
21 appear the spur gears can be replaced by sector gears (see Schubert's FIGURE 6, noting that spur
22 gears 30 and 29 engage each other, as well as racks 25; in addition, note that spur gear 29 also
23 engages driven gear 31, indicating that such spur gears cannot likely be replaced by sector gears,
24 because the sector gears would not provide the required rotation). Further, the spur gears are not
25 attached to lower tools 19 and 20, as recited in Claim 30. Note also that Schubert's third
26 embodiment (shown in his FIGURE 26) includes a sector gear (shoe 66/rail 62) attached to lower
27 tool 19, and a sector gear (shoe 67/rail 61) attached to lower tool 20. The sector gears are driven
28 along a curved guide track (which apparently does not include any teeth, see bearing groove 78 of
29 FIGURES 28 and 29) by spur gears 63 and 64. Significantly, this configuration is not equivalent
30 to applicant's recited configuration, because no linear rack gear is employed in Schubert's third

1 embodiment. Furthermore, in this embodiment of Schubert, lower tools 19 and 20 are actually
2 not physically coupled together, which is an element recited in applicant's claims. Further note
3 that although Schubert's fourth embodiment (FIGURE 28) includes sector gears attached to lower
4 tools 19 and 20, as recited in Claim 30, this configuration is not equivalent to applicant's recited
5 configuration, because no rack gear is employed in Schubert's fourth embodiment. Furthermore,
6 this embodiment of Schubert includes a piano-type hinge, not the required pair of hinges at
7 opposed ends (see applicant's FIGURES 4, 5, 6 for an example of the sector gear, working
8 surface, and hinge configuration required by Claim 30, which is the hinge orientation being
9 recited in applicant's claims). The structure defined in Claim 30 thus distinguishes over the cited
10 art.

11 Rejection of Claims 47 and 7-11 under 35 U.S.C. § 102(b)

12 The Examiner has rejected Claims 47 and 7-11 (each of which are ultimately dependent
13 upon Claim 47) as being anticipated by U.S. Patent No. 5,295,384 (Schubert). The Examiner
14 asserts that Schubert discloses an equivalent device.

15 Note that Claim 47 recites subject matter substantially similar to that recited in Claim 6,
16 and the novelty of Claim 6 has been discussed above in detail. Claim 47 therefore distinguishes
17 over the cited art for substantially the same reasons as Claim 6.

18 Furthermore, Claim 47 as presented herein has been amended to state that the hinges are
19 generally orthogonal to the longitudinal axis of the bending die (this configuration can clearly be
20 seen in applicant's FIGURE 4), to further emphasize the structural differences between the
21 claimed hinge and the piano hinges of many of Schubert's embodiments. Claims 7-11 are each
22 patentable for at least the same reasons as independent Claim 47. Accordingly, the rejection of
23 Claims 47 and 7-11 as being anticipated by Schubert should be withdrawn.

24 As noted above, it was agreed in the Telephone Interview that Claims 8, 9, and 11
25 patentably distinguish over Schubert. Note that Claim 8 recites subject matter substantially
26 similar to that recited in Claim 30, and the novelty of Claim 30 has been discussed above in
27 detail. Claim 8 thus distinguishes over the cited art for substantially the same reasons as
28 Claim 30. A brief discussion of why Claims 9 and 11 further distinguish over the cited art is
29 provided below.

1 With respect to Claim 9, the following elements are recited: *“said frame includes a*
2 *generally U-shaped portion defined by support members disposed adjacent to the end of one of*
3 *the first and second working surfaces, such that each rack gear is attached to a different*
4 *support member.”* (Emphasis added.) Note that Schubert’s first embodiment (and presumably
5 second embodiment, although Schubert’s specification is not very clear on this point) includes
6 rack gears that engage spur gears. Claim 9 requires that the rack gears be attached to a frame
7 support member, which forms a generally U-shaped member. There is simply no basis for
8 concluding Schubert’s rack gears are attached to frame elements 3 or 4. Indeed, as indicated in
9 Schubert’s FIGURE 6, the rack portion must be able to move relative to the frame to achieve the
10 motion indicated in Schubert’s FIGURES 6-8. Thus, racks 25 cannot be attached to a support
11 member defining a generally U-shaped portion of the frame. With respect to Schubert’s third
12 embodiment (FIGURE 26), such an embodiment includes a curved track that is attached to the
13 lower frame; however, the track does not appear to include any teeth (i.e., the track is not a rack
14 gear). Sector gears 61 and 62 slide in the curved track, driven by spur gears 63 and 64. Thus,
15 this embodiment does not include the recited rack attached to the frame. Schubert’s fourth
16 embodiment (FIGURES 27-35) includes sector gears and driven spur gears, but no rack. The
17 structure defined in Claim 9 thus further distinguishes over the cited art.

18 With respect to Claim 11, the following elements are recited by applicant: *“each hinge*
19 *assembly further comprises a first link and a second link joined by a pivot shaft, the first link*
20 *being coupled to one sector gear, and the second link being coupled to another sector gear.”*
21 Schubert’s FIGURES 14-21 illustrate the hinges for Schubert’s first embodiment. Significantly,
22 these hinges are disposed within cutouts in Schubert’s lower tools 19 and 20. Such hinges do
23 include the required links and pivot shaft; however, the links are not coupled to the recited sector
24 gears. Schubert’s second, third and fourth embodiments each include a single piano type hinge
25 that couples the lower tools 19 and 20 together. Such a structure includes the required links and
26 pivot shaft; however, the links are not coupled to the recited sector gears. The structure defined
27 in Claim 11 thus further distinguishes over the cited art.

1 Rejection of Claim 50, 51, and 52 under 35 U.S.C. § 102(b)t

2 The Examiner has rejected Claims 50, 51, and 52 as being anticipated by U.S. Patent
3 No. 5,295,384 (Schubert). The Examiner asserts that Schubert discloses an equivalent device.
4 Applicant has substantially amended Claims 50 and 51 to obviate the rejection.

5 Note that Claims 50, 51, and 52 each recites subject matter substantially similar to that
6 recited in Claim 4, and the novelty of Claim 4 has been discussed in detail above. Significantly,
7 in the Telephone Interview noted above, it was agreed that Claim 4 distinguished over the cited
8 art, in defining a bending tool with an adjustable gap between opposed working surfaces, the
9 adjustable gap enabling a channel of a desired dimension to be formed.

10 It should also be noted that, as amended, Claims 50 and 51 are entirely consistent with the
11 originally elected species (i.e., Species A).

12 The cited art does not teach or suggest a bending tool enabling an adjustable gap between
13 opposed working surfaces to be achieved. Accordingly, the rejection of Claims 50, 51, and 52 as
14 being anticipated by Schubert should be withdrawn.

15 Rejoinder of Withdrawn Claims

16 The Examiner withdrew Claims 12, 14, 15, 17-24, 31, 33, and 35 from consideration, as
17 being directed to non-elected species. Independent Claims 1 and 25 appear to be allowable over
18 the cited art. Claim 1 is generic to the non-elected species encompassed in Claims 12, 14, 15,
19 and 17-24; while Claim 25 is generic to the non-elected species encompassed in the Claims 31,
20 33 and 35. Accordingly, Claims 12, 14, 15, 17-24, 31, 33, and 35 should be rejoined.

21 Patentability of Amended Claims

22 Applicant has amended Claims 48, 49, and 51. Such claims were previously withdrawn
23 from consideration by the Examiner as being directed to non-elected species.

24 As amended, Claim 48 recites the subject matter substantially similar to the subject matter
25 distinguishing Claim 11 over the cited art. The novelty of Claim 11 has been discussed in detail
26 above, and with respect to the Telephone Interview, it was agreed that the subject matter of
27 Claim 11 distinguished over the cited art. Claim 48 as amended is patentable for substantially the
28 same reasons.

29 As amended, Claim 49 recites the subject matter substantially similar to the subject matter
30 distinguishing Claim 8 over the cited art. The novelty of Claim 8 has been discussed in detail

1 above, and with respect to the Telephone Interview, it was agreed that the subject matter of
2 Claim 8 distinguished over the cited art. Claim 49 as amended is patentable for substantially the
3 same reasons. Note that while Kimura discloses the sector gears and rack gears, Kimura does not
4 teach or suggest the hinge assembly linking the sector gears and working surfaces together. As
5 discussed in detail above, the hinge assemblies disclosed by Schubert are not equivalent.
6 Applicant's FIGURE 4 clearly illustrates a hinge linking opposed sector gears together, each
7 sector gear being coupled to a different working surface.

8 As amended, Claim 51 recites the subject matter substantially similar to the subject matter
9 distinguishing Claim 4 over the cited art. The novelty of Claim 4 has been discussed in detail
10 above, and with respect to the Telephone Interview, it was agreed that the subject matter of
11 Claim 4 distinguished over the cited art. Claim 51 as amended is patentable for substantially the
12 same reasons as Claim 4.

13 Express Request for Telephone Interview if Required to Place Case in Condition for Allowance

14 In view of the Remarks set forth above, it will be apparent that all of the claims in this
15 application define a novel and non-obvious invention, and that the application is in condition for
16 allowance and should be passed to issue without further delay. Should any further questions
17 remain, the Examiner is requested to telephone applicant's attorney at the number listed below, in
18 order to advance the already extended prosecution of this application.

19
20 Respectfully submitted,

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23
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